AC NO: 21-4B

DATE:

7/30/69



# ADVISORY CIRCULAR

## DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

SUBJECT: SPECIAL FLIGHT PERMITS FOR OPERATION OF OVERWEIGHT AIRCRAFT

- 1. <u>PURPOSE</u>. This circular provides information and guidance with respect to application for, and issuance of special flight permits to operate an aircraft in excess of its maximum certificated takeoff weight, for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available.
- 2. CANCELLATION. AC No. 21-4A, effective 9/16/66, is cancelled.
- 3. REFERENCE.
  - a. Federal Aviation Regulations (FAR) Part 21, Sections 21.197(b) and 21.199.
  - b. International Flight Information Manual. (This Federal Aviation Administration manual is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)
- 4. GENERAL. FAR 21.197(b) limits the excess weight that may be authorized for overweight operations to additional fuel, fuel carrying facilities, and navigational equipment necessary for the flight. Guidance and information specifically applicable to the applicant's proposed flight may be obtained from any Federal Aviation Administration District or Area Office. The following paragraphs provide general information which should be helpful to the applicant.
  - a. Application for a special flight permit is made on FAA Form 8130-6 "Application for Airworthiness Certificate." (A sample form is in Appendix 1). FAR 21.199 establishes the general application requirements.

Initiated by: FS-180

- b. FAR Part 43 prescribes requirements for approval, return to service, and alteration records associated with the installation of additional facilities. Appendix B of FAR Part 43 and Advisory Circular 43.9-1B give instructions for completion of the FAA Form 337, on which alterations are recorded.
- c. It is recommended that the applicant discuss the proposed flight with the manufacturer of the aircraft or an FAA-approved repair station, to determine the availability of technical data on the installation of additional fuel carrying facilities and/or navigational equipment.
- d. Before flight to a foreign country of an aircraft having a special flight permit authorizing overweight operation, the applicant should determine whether operating requirements may be imposed by that country, and any other country on the route of flight, because of the condition of the aircraft. (See Section D on the reverse side of the Special Airworthiness Certificate, FAA Form 8130-7.) A request for permission to operate over or within a foreign country should include a statement describing the deviations from the FAA airworthiness standards. (Such deviations, in effect, would also be deviations from the airworthiness standards of Annex 8 to the Convention on International Civil Aviation (ICAO), since the FAA standards meet ICAO requirements.) With respect to an aircraft operating under FAR 21.197(b), the statement may be worded as follows: "This aircraft does not comply with the International Airworthiness Standards of Annex 8 to the Convention on International Civil Aviation when operated at a weight in excess of its maximum certificated takeoff weight because of the additional fuel, fuel carrying facilities, and navigation equipment installed in the aircraft." (Note: The words "and navigation equipment" should not be used if such additional equipment is not required for the flight.)
- e. If the aircraft is being exported, the applicant must comply with any applicable requirements established by the Departments of State, Treasury, and Commerce, and, if an FAA Export Certificate of Airworthiness is required, with the applicable regulations in FAR Part 21, Subpart L. The FAA International Flight Information Manual also provides guidance with respect to the requirements for navigation and operation of aircraft in foreign countries, as well as other miscellaneous information of value to persons contemplating flights outside of the United States.
- 5. CRITERIA USED TO DETERMINE THE SAFETY OF ADDITIONAL FACILITIES. In approving the installation of additional facilities, the FAA must find that the altered aircraft is safe for operation. To assist in arriving at such a determination, the following questions are normally considered:

- a. Does the technical data include installation drawings, structural substantiating reports, weight, balance, new center of gravity limits computations, and aircraft performance limitations in sufficient detail to allow a conformity inspection of the aircraft to be made?
- b. In what ways does the aircraft not comply with the applicable airworthiness requirements (See FAR 21.199(a)(4))?
- c. Are the fuel tanks vented to the outside? Are all areas in which tanks are located ventilated to reduce fire, explosion, and toxicity hazards?
- d. Are the tanks even when empty strong enough to withstand the differential pressure at maximum operating altitude for a pressurized aircraft?
- e. Have means been provided for determining the fuel quantity in each tank prior to flight?
- f. Are shutoff valves, accessible to the pilot, provided for each additional tank to disconnect these tanks from the main fuel system?
- g. Are the additional fuel tank filler connections designed to prevent spillage within the aircraft during servicing?
- h. Is the engine oil supply and cooling adequate for the extended weight and range?
- 6. <u>LIMITATIONS</u>. The following types of limitations may be necessary for safe operation of the aircraft (Reference FAR 21.199(a)(6)):
  - a. Revised operational airspeeds for use in the overweight condition.
  - b. Increased pilot skill requirements.
  - c. A prescribed sequence for using fuel from various tanks as necessary to keep the aircraft within its center of gravity range.
  - d. Notification to the control tower of the overweight takeoff condition to permit use of a runway to minimize flight over congested areas.
  - e. Avoidance of severe turbulence. If encountered, the aircraft should be inspected for damage as soon as possible.

f. Notification to the nearest District or Area Office located at the point of departure from the U. S. in sufficient time for that office to determine that the aircraft still conforms to the terms and conditions of the special flight permit.

Director
Flight Standards Service

# Example of an Application for a Special Flight Permit for Operation in Excess of Maximum Certificated Takeoff Weight

(Face Side)

Form Approved
Budget Bureau No. 04-R0018

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FAA Form 8130-6 (3-69) SUPERSEDES FAA FORM DOS AND FAA 100M 8100-3

# Example of an Application for a Special Flight Permit for Operation in Excess of Maximum Certificated Takeoff Weight

(Reverse Side)

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	A. DESCRIPTION OF AIRCRAFT										
1	REGISTERED OWNER	ADDRESS 1492 North Street									
ĺ	John J. Doe	St. Louis, Missouri 12345									
	BUILDER ( Mate)	MODEL									
ł	Beech	D50A									
	SERIAL NUMBER	REDISTRATION MARK									
ì	4321	N1234Z									
١	B. DESCRIPTION OF FLIGHT										
5	FROM	10									
=	St. Louis, Missouri	Honolulu, Hawaii									
<u> </u>	, VIA	DEPARTURE DATE DURATION									
=	Oakland, California	July 15, 1969 15 days									
6	C CREW PEQUIPED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT	1,5021 15, 1505									
Į	X PLOT X CO PLOT CAPSATOR OTHER STATE										
l ē	D. THE AGGRAFT DOES NOT MEET THE APPLICABLE ARMORTHINGS RE	QUIREMENTS AS FOLIOWS:									
ă ă	The aircraft does not meet the applical	ole airworthiness requirements when operated									
Z	at a weight in excess of its certificat	ted weight of 6300 lbs. The temporary fuel									
Į	tank installation is in accordance with	Flight Inc. Drawing 2-26189 and									
<b>E</b>	FAA Form 337 "Major Repair and Alterati	lon" dated June 15, 1969, issued by									
6	CE-GADO-17	, , , , , , , , , , , , , , , , , , ,									
1 5											
õ											
ş											
=	St. Louis, Missouri  St. Louis, Missouri  Oakland, California  Content of Con										
2	E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED METESSARY FOR SAFE OPERATION ( Or attachment of meterals)										
1 -	1. When the aircraft is overweight, the	e cruising speed (Vc) should not exceed									
3	185 m.p.h. and the maximum speed (%	ne) should not exceed 205 m.p.h.									
=	2. The sequence of use for the auxiliary fuel tanks, as shown by a temporary										
₫	placard on the instrument panel, should be aft, forward, center.										
%											
] <u>~</u>	3. The fuel quantity should not exceed 106 gallons in the forward tank, 164 gallons in the center tank, and 45 gallons in the aft tank.										
>	104 gallous in the center tank, and	45 gallons in the art tank.									
į											
		!									
	E CERTIFICATION I have be specify that I as the a second second	we have a warm of the agency to the rebuilt above the tree the greenst is recognized									
	F. CERTIFICATION—I hereby certaly that I in their justical discretion has again; of the aircraft described above, that the aircraft is registered with the Federal Avantion Act of 1958, and applicable Federal Avantion.										
	Regulations, and that the arterial has been inspected and is a resorth	y for the slight described									
i	DATE MARKET AND DOLE TO A CONTROL	SCNATURE L-									
1	July 2, 1969 John . Doe	Tour of NA									
32	A. Operating Limitations and Markings in Carral ance with FAR	G. Statement of Conform W. Falk form 317 (1997) when remared)									
100 (N	91 31 as Applicable	H. Foreign A rearth ness Certification for Impail Aucroft (-111 while)									
HY 6	B. Current Operating Contations Affacted	retained)									
وَنِ وَ	C. Dota, Drawings, Photographs, etc	1. Proxidus Airworthiness Certificate Issued in Accordance with									
POCUNCATAR	D. Current Weight and Salance Information Available in Allocati	FAR (Original attached)									
<b>185</b>	E. Major Repair and Alteration, FAA 337	J. Courent Airworthiness Certificate Issued in Accordance with									
-	F. This Inspection Roca deal in Aircross Pacards	EAR (C to attached)									
		# U.S. 10942884591 PR NONG CEFFCE 1949 CF - 347-330									

Example of a Special Airworthiness Certificate
Issued to Permit Operation in Excess of Maximum
Certificated Takeoff Weight

	CLASSIFICATION: Special Flight Permit										
A	PURPOSE:	Operation in excess of m	axa certificated T.O. weigh								
R	MANU-	NAME TYA -									
0	FACTURER	ADDRESS N/A	UU								
С	FLIGHT	FROM St. Louis, Misso	uri								
		TO Honolulu, Hawaii									
_	N=1234Z	***************************************	SERIAT NO. 4321								
D	BUILDER B	eech	MODEL D50 A								
	DATE OF IS	SUANCE 7/10/69	EXPIRY 7/30/69								
_	OPERATING	LIMITATIONS DATED! 7/10/69	ARE A PART OF THIS CERTIFICATE								
Ε	SIGNATURE	OF FAA REPREBENTATIVE S	DESIGNATION OR OFFICE NO.								
	Richar	d C. Smith	CE-GADO-17  punishable by a fine not exceeding \$1.000 or ATE MUST BE DISPLAYED IN THE AIR-								

(Face Side)

A	This airworthiness certificate is issued under the authority of the Federal Aviation $Act$ of 1958 and the Federal Aviation Regulations (FAR).
В	This airworthiness certificate authorizes the manufacturer named on the reverse side to conduct production flight tests, and only production flight tests, of aircraft registered in his name. No person may conduct production flight tests under this certificate: (1) Carrying persons or property for compensation or hire; and or (2) Carrying persons not essential to the purpose of the flight.
С	This airworthiness certificate authorizes the flight specified on the reverse side for the purpose shown in Block A.
D	This airworthiness certificate certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to meet the requirements of the applicable FAR. The aircraft does not meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention On International Civil Aviation. No person may operate the aircraft described on the reverse side: (1) except in accordance with the applicable FAR and in accordance with conditions and limitations which may be prescribed by the Administrator as part of this certificate; (2) over any foreign country without the special permission of that country.
E	Unless sooner surrendered, suspended, or revoked, this airworthiness certificate is effective for the duration and under the conditions prescribed in FAR Part 21, Section 21.181 or 21.217.

Example of Operating Limitations Which May be Prescribed as Part of the Special Airworthiness Certificate Shown on Page 3 of this Appendix

Aircraft Make: Beech Model: D50A

Serial No: 4321 Ident. Marks: N1234Z Issue Date: 7/10/69

#### OPERATING LIMITATIONS

1. Maximum weight must not exceed 8,150 pounds.

- 2. Maximum quantity of fuel carried in auxiliary tanks must not exceed 106 gallons in fwd tank, 164 gallons in center tank, and 45 gallons in aft tank.
- Center of gravity limits must not exceed (fwd) +116.8 and (aft) +124.6.
- 4. Acrobatics are prohibited.
- 5. Use of autopilot while in overweight condition is prohibited.
- Weather conditions with moderate to severe turbulence should be avoided.
- 7. When an overweight landing is made or the aircraft has been flown through moderate or severe turbulence while in an overweight condition, the aircraft must be inspected for damage after landing. The inspections performed and the findings must be entered in the aircraft log. The pilot must determine, before the next takeoff, that the aircraft is airworthy.
- 8. When operated in the overweight condition, the cruising speed (Vc) shall not exceed 185 m.p.h. and the maximum speed (Vie) shall not exceed 205 m.p.h.
- 9. Operation in the overweight condition must be conducted to avoid areas having heavy air traffic, to avoid cities, towns, villages, and congested areas, or any other areas where such flights might create hazardous exposure to person or property on the ground.
- 10. Prior to requesting clearance to takeoff position, the pilot in command must advise the tower of the overweight condition and of any limitations with respect to a specific runway or prescribed meteorological conditions.
- 11. The pilot-in-command shall contact the Oakland General Aviation District Office (WE-GADO-7), 9636 Earhart Road, P. O. Box 2397, Airport Station, Oakland, California 94614, telephone (415) 569-8879, prior to arrival at Oakland, in sufficient time for review of the ferry permit and FAA inspection of the aircraft before departure for Honolulu.